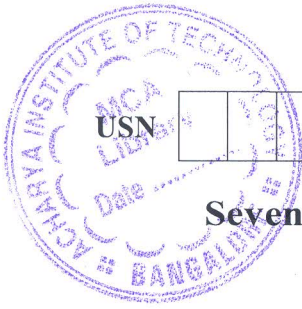


CBCS SCHEME



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18EE744

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024 Smart Grid

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define Smart grid. Explain the need of a Smart grid. (10 Marks)
b. Explain how the smart grid enables the electricity network. (10 Marks)

OR

- 2 a. Write a short note on:
i) Local energy networks. (10 Marks)
ii) Electric transportation. (10 Marks)
b. Explain device level power system and building integrated power system. (10 Marks)

Module-2

- 3 a. List and explain energy-consuming devices and appliances operate internally on DC power. (10 Marks)
b. Explain DC power delivery systems in data centers or server forms. (10 Marks)

OR

- 4 a. Explain five functionalities of Intelligrid today. (10 Marks)
b. Brief note on:
i) Smart grid vision based on Intelligrid. (10 Marks)
ii) Barriers to achieve the vision of Intelligrid. (10 Marks)

Module-3

- 5 a. Define dynamic energy system. Explain integrated communication architecture with an example. (10 Marks)
b. Explain in brief:
i) Demand side management (10 Marks)
ii) Demand response. (10 Marks)

OR

- 6 a. Explain overview of a dynamic energy management-system operation from an integrated perspective. (10 Marks)
b. Write a short note-key characteristics of
i) Smart energy efficient end use devices and DER. (10 Marks)
ii) Advanced whole building control system. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. Write a brief note on:
- i) Space conditioning.
 - ii) Domestic water heating.
 - iii) Variable refrigerant flow air conditioning. (10 Marks)
- b. Explain industrial use of electricity by the use of
- i) Motors and drives
 - ii) Motors
 - iii) Drive train. (10 Marks)

OR

- 8 a. Explain three additional key opportunities for energy efficiency in the industrial sector. (10 Marks)
- b. Explain Electrotechnologies. (10 Marks)

Module-5

- 9 a. Explain selection of alternatives and issues critical to demand side. (10 Marks)
- b. Explain how the demand side activities can be categorized in a two level process. (10 Marks)

OR

- 10 a. Explain levels of evaluation in demand side planning. (10 Marks)
- b. Write a note on:
- i) System context
 - ii) Transferability
 - iii) Data requirement. (10 Marks)
